

ABSTRACT

Provided is an actuator for scanning detecting light, comprising an optical element for emitting detecting light, a moveable part supporting the optical element, a sheet spring having a fixed end and a moveable end supporting the moveable part; and drive means for driving the moveable part so as to scan the detecting light. Thus, a spring-mass system is formed in which the moveable part retaining the optical device acts as the mass, and the first order resonant frequency of the system may be selected so as to be higher than the operating frequency (scanning frequency). A bearing for a sliding part is not required, and the resistance loss can be thereby eliminated. These factors contribute to a favorable responsiveness. Also, by properly designing the sheet spring, a lighter and more compact design is enabled than would be possible with the conventional arrangement. A plurality of drive force generating units disposed on either side of the optical element in such a manner that the combined force of the drive force produced by the drive force generating units acts substantially onto the gravitational center of the moveable part. Thus, the drive efficiency can be improved while saving energy and achieving a high level of responsiveness.